

REDUCING AN INSURGENCY'S FOOTHOLD: USING ARMY SUSTAINABILITY CONCEPTS AS A TOOL OF SECURITY COOPERATION FOR AFRICOM

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USAWC CLASS OF 2008

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Reducing an Insurgency's Foothold:
Using Army Sustainability Concepts as a
Tool of Security Cooperation for AFRICOM



March 2008

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The images on the cover depict some of the images from Baghdad during Operation Iraqi Freedom in 2004. Photographs were supplied by LTG Peter W. Chiarelli, Senior Military Assistant to the Secretary of Defense.

Top Left

Iraqi Security Guard on patrol in the city of Baghdad, Iraq.

Top Right

Trash dump in a village outside of Baghdad, Iraq.

Bottom Left

Open sewage in a village outside of Baghdad, Iraq.

Bottom Right

Iraqi men put to work in Sadr City outside Baghdad, Iraq.

USAWC CIVILIAN RESEARCH PROJECT

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USING ARMY SUSTAINABILITY CONCEPTS AS A
TOOL OF SECURITY COOPERATION FOR AFRICOM**

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ACRONYMS

| | |
|---------------|---|
| AEPI..... | U. S. Army Environmental Policy Institute |
| AFRICOM | U.S. Africa Command |
| AOR..... | Area of Responsibility |
| COIN..... | Counterinsurgency |
| DoD..... | Department of Defense |
| GWOT..... | Global War on Terrorism |
| NGO..... | Non-government Agency |
| OEF..... | Operation Enduring Freedom (Afghanistan) |
| OIF..... | Operation Iraqi Freedom (Iraq) |
| PRT..... | Provisional Reconstruction Team |
| SWET..... | (Sewage, Water, Electricity, and Trash) |
| U.S..... | United States of America |

REDUCING AN INSURGENCY'S FOOTHOLD: USING ARMY SUSTAINABILITY CONCEPTS AS A TOOL OF SECURITY COOPERATION FOR AFRICOM

Economic development, good governance, and the provision of essential services, all occurring within a matrix of effective information operations, must all improve simultaneously and steadily over a long period of time if America's determined insurgent enemies are to be defeated.¹

—U. S. Army Field Manual 3-24, *Counterinsurgency*

Background

On February 6, 2007, President Bush announced the creation of a new unified command called U.S. Africa Command (AFRICOM).² “AFRICOM will enhance our efforts to bring peace and security to the people of Africa and promote our common goals of development, health, education, democracy, and economic growth in Africa,” President Bush said in a White House statement.³ AFRICOM will be an interagency headquarters composed of personnel from the Department of Defense, Department of State, U.S. Agency for International Development, and other U.S. government agencies organized to focus on development of war-prevention in lieu of warfighting.⁴ The intent is to create an environment that promotes stable governments and societies in various African countries, therefore making it less likely for insurgents to gain a foothold and thereby precluding internal strife in a region that is vulnerable to such intrusion.

AFRICOM's command structure, and its inclusion of the interagency as an integral component, is designed to provide flexibility in mission execution while promoting relationships with regional partners in the areas of security, diplomacy, and regional development. Such an approach is necessary, as AFRICOM confronts significant challenges including failing states, fragile governments and civil society, as well as a natural environment that does not furnish adequate support to the human population.

These factors make Africa a viable place for terrorists and insurgents to inhabit and operate. In February 2008, the Director of the Defense Intelligence Agency, testifying before the Senate Armed Services Committee, noted a number of insurgencies throughout the world, including the clash between the government of Chad and rebel forces in the eastern part of that country and in Somalia where the fledgling Transitional Federal Government is attempting to establish its legitimacy in the face of organizations, such as the former Council of Islamic Courts, which are waging insurgent-like attacks. He also stated that although there has been progress towards democracy and the conflict resolution in a substantial number of cases in Africa, these advances remain tenuous because of inter-tribal as well as religious violence. A week later, in the Annual Threat Assessment of the Director of National Intelligence, J. Michael McConnell remarked on the continuing political instability and regional conflict in Africa, including al-Qa'ida's interest in attacking targets in Africa using its East Africa terrorist network.⁵

The United States Government and its military confront this strategic environment in the near term. It is a view not only articulated by Department of Defense officials, Army Chief of Staff, General George W. Casey, Jr. is a recent example when he stated, "As we look to the future, national security experts are virtually unanimous in predicting that the next several decades will be one of *persistent conflict* where local and regional frictions, fueled by globalization and other emerging trends, are exploited by extremists to support their efforts and destroy our way of life."⁶ Transforming the U.S. military, and for that matter, the interagency, to deal with persistent conflict requires a force that can meet these requirements. Interagency support with skill-sets of diplomacy, dispute resolution, mediation, and negotiation would be most helpful to AFRICOM operatives

working with host nation governments to deliver national security goals. Specifically, countering insurgencies may require the United States to assist allies or strategic partners to conduct military operations as well as train military and security forces to counter insurgent elements including rapidly deploying substantial numbers of ground forces from over great distances to meet combatant commanders' requirements for these various types of operations.⁷ Objectives like these require a U.S. military that can sustain itself, be self-sufficient, and self-reliant without causing friction within host nations or damaging the environment (to the extent that the host nation can not continue to exist or support itself). A workable and host-nation friendly counterinsurgency strategy can be accomplished if the U.S. military, and more importantly, the regional commander, incorporates Army sustainability concepts that include elements such as waste control, water preservation, and distribution of energy.

AFRICOM presents a unique opportunity to develop a new means in which U.S. forces live, execute the mission, and work with host nation leadership to assist in their development while meeting U.S. national strategic goals. Sustainability is a strategic concept that can be used as a tool for security cooperation by AFRICOM commanders in the field to address the needs of their soldiers and civilian personnel while concurrently working to protect U.S. interests and reduce the threat of regional insurgencies.

Sustainability and Human Needs

Sustainability – the goal, and *sustainable development* – the behavior needed to achieve the goal, have emerged as common terms used to describe how AFRICOM should approach this aspect of its mission.⁸ The World Commission on Environment

and Development chaired by Gro Harlem Brundtland, in its 1987 report, *Our Common Future*, defined sustainable development as “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.⁹ The Commission also described some key objectives for sustainable development: “reviving economic growth, but in a new form (less material-and energy-intensive); meeting essential needs for jobs, food, water, energy, and sanitation while conserving and enhancing the natural resource base; and merging ecological and economic considerations in decision-making.”¹⁰ As one scholar has noted, the value that sustainability brings to AFRICOM's mission is that it affects all countries, is non-threatening, transcends tensions, creates synergy through promotion of interagency/international cooperation, and is low cost.¹¹ Moreover, sustainability addresses the fundamental needs of people, particularly those in the lowest socioeconomic strata. Until those fundamental, that is, survival, needs are dealt with then other higher order needs are unimportant or unattainable, a point that psychologist Abraham Maslow made in 1943 in his hierarchy of needs theory.

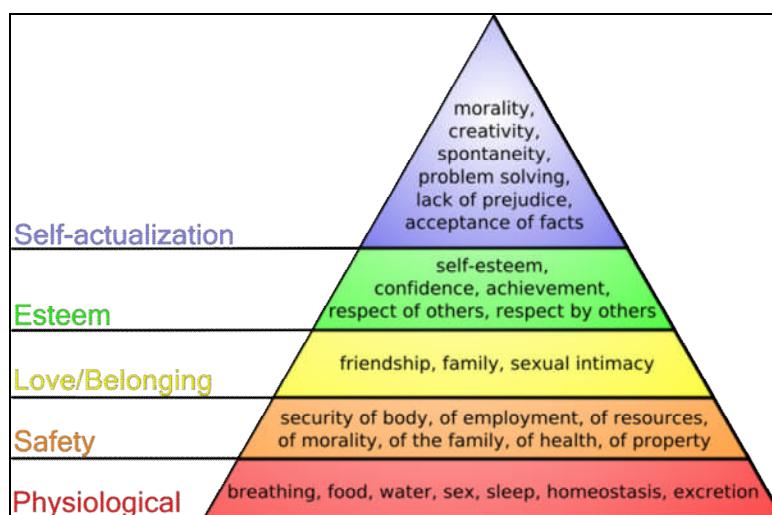


Figure 1. Maslow's hierarchy of needs is represented as a pyramid with the more primitive needs at the bottom.¹²

Maslow's hierarchy of needs depicts the human needs of survival and growth. The lower portion of the pyramid in figure 1 describes the basic human need of survival. The higher needs in this hierarchy only gain importance when the lower needs in the pyramid are satisfied. However, the needs in the lower level are not jettisoned once an individual has moved upward to the next level.¹³

As AFRICOM matures in its capacity to conduct its missions within its area of responsibility, the needs of the people, especially the physiological and safety needs must be taken into account as the people, particularly the non-elites, will either assist AFRICOM or hinder its ability to operate. Maslow's pyramid reflects the motivation and ambitions of people as they are faced with challenges in peace as well as in conflict, although the latter may make the lower needs more critical. AFRICOM will conduct operations in areas where both unrest and tranquility occur and where nation building may occur simultaneously with counterinsurgency and stability operations. Regardless of the milieu, consideration of people's needs for health care, education, economic development and good governance is crucial to the successful accomplishment of AFRICOM's varied missions. To ensure mission success, AFRICOM should consider use of the Army's sustainability concepts.

Defining AFRICOM'S Sustainability Issue

The Army defines sustainability as a comprehensive systems approach to planning and decision-making designed to sustain the natural infrastructure, which includes land, water, air, and energy resources required to conduct our mission.¹⁴

AFRICOM's mission is to work with African nations and organizations to build regional security and crisis-response capacity in support of U.S. government efforts in Africa.¹⁵

For AFRICOM to succeed with its mission, every aspect of sustainability as defined previously must be considered throughout mission planning.

AFRICOM's nation-building mission is the key to infrastructure modernization and prevention of conflict. Infrastructure modernization will take the form of community development, employment initiatives to build an economic base, and improvements such as building roads and railways. This is a change in strategy for the U.S. government because the focus in Africa up to this point has primarily been on disrupting terrorist activities rather than conflict prevention and developing the infrastructure of the African nations.

The expected military force size for AFRICOM units deployed within regions will most likely be small scale elite company-sized light-infantry units assisted by air and sea assets.¹⁶ However, more than light infantry units are needed for the AFRICOM mission. To identify with AFRICOM's multi-faceted role, Provincial Reconstruction Team (PRT) will be most important to the security cooperation effort.

PRTs consist of components that address diplomacy, rule of law coordination, agricultural and infrastructure development, engineering, civil affairs, cultural affairs, security forces both military and contracted, and liaison from the AFRICOM headquarters. PRTs would utilize their security forces to assist in helping host armies and police as advisors or when conducting counterinsurgency operations while the other components of the PRT concurrently carry out nation building, modernization, and job creation missions for the local populous. The most rapid and effective means of generating development and reconstruction activity, and therefore jobs, is through

relationships developed by local military commanders with the local government and community leaders that can produce quick accomplishments through disbursements.¹⁷

A concern for deploying a PRT is that they will be located in places where natural resources, such as water, may be limited with a strong likelihood that the host nation will be competing for those same resources. In addition, given the large number of insurgencies and other forms of conflict on the continent, PRTs may encounter refugees and displaced civilians, something that will further contribute to vying for these same resources. Refugees and displaced civilians within the area of responsibility create a sustainability crisis that necessitates water conservation and preservation, waste control, and energy in order to sustain life.¹⁸ Water is the most valuable resource for sustaining life. However, waste control provides a means for disease prevention and has the potential to be used as an energy source, reducing the demands for outside energy sources that could become potential insurgent targets. The U.S. military's experience in Iraq provides a suitable example of the importance of waste control, which may be of use to AFRICOM.

During the U.S. involvement in Iraq for Operation Iraqi Freedom in 2003-2004, Camp Anaconda in Balad, Iraq was faced with an unusual problem dealing with security caused by trash waste. As with all base camps in Iraq, there was only one way to get rid of the trash waste and that was by incineration in a burn pit somewhere inside the base. Burning waste in an open pit not only posed a hazard to respiratory health of the soldiers living in Camp Anaconda, it also created a force protection issue from local Iraqi civilians from nearby villages breaching the fence to salvage the burn pit. The local Iraqi civilians that lived nearby could see the type of trash being burned and found it as

a potential source of income to them and their families. There was a better way to handle waste so that it would not become a security risk or detriment to the soldiers.

Waste can be used to produce energy for a base that will reduce the requirement for outside energy support, such as fuel trucks delivering supplies to the base camp. Reducing the need for fuel trucks traveling between the supply depots to base camps also reduces the potential that the fuel truck will be used as a weapon. Insurgent groups put soldiers' lives at great risk when they target a fuel truck for destruction to gain sympathy with the local population, or attract media attention that aids in recruitment to their cause, or creates fear among the locals, which keeps them from helping security forces in the counterinsurgency effort.

Energy production, water preservation, and waste control are all part of sustainability but most importantly, they can be useful as a tool for security cooperation to reduce the likelihood of insurgency and maintain a peaceful environment for local governments to develop. Additionally, sustainability development that addresses the municipal service needs of the people is consistent with the AFRICOM mission.

Sustainability as a Force Multiplier

When people lose hope, when societies break down, when countries fragment, the breeding ground for terrorism are created.¹⁹

—The 9/11 Commission Report

Carl von Clausewitz stated "War is the continuation of policy by other means".²⁰ According to the National Security Strategy, the United States is engaged in a long war with terrorism throughout the globe. Transnational terrorist groups are active on the African continent with known al-Qa'ida operatives continuing to function in Somalia and elsewhere in East Africa. Nigeria, both Africa's most populous nation and home to the

largest Muslim population, faces challenges ranging from radical Islamism in the northern states to tensions in its oil-saturated southeast.²¹ AFRICOM will be adhering to U.S. policy by focusing attention on the War on Terror while conducting war-prevention programs and rebuilding infrastructure throughout its area of responsibility.

As sustainability concepts are applied by AFRICOM through its war prevention programs and infrastructure building, it provides the people of the host nation receiving assistance the opportunity to build trust in AFRICOM's mission through the relationships established with the command, through the command's supplying of resources, creation of employment opportunities, and delivery of services. Sustainability will also build the local peoples confidence in AFRICOM when they realize that their needs are being met through employment and sustainable development that provides their families with a more stable and secure future. A closer look at how insurgencies develop and contribute to the failure of a mission, such as the mission of AFRICOM, will be most helpful in understanding how sustainability can contribute to AFRICOM's success by being a force multiplier as a tool of security cooperation against the insurgency.

Low-intensity conflict has been more common throughout the history of warfare than has conflict between nations represented by armies on a "conventional" field of battle.²² An insurgency's essence is protracted, asymmetric violence; political, legal, and ethical ambiguity; and the use of complex terrain, psychological warfare, and political mobilization.²³ The cause of most recent insurgencies can easily be attributed to one of many manifestations of declining state control and systemic weakness. It co-exists with many others, most importantly the rise of militias, powerful criminal gangs and syndicates, informal economies, the collapse of state services, humanitarian crisis

or disasters, crises of identity, and transnational terrorism.²⁴ The only way for any insurgency to succeed is by finding sympathizers to support its cause through persuasion and fear. There is a difference, however, between a plot to overthrow a government and an insurgency. An insurgency is typically a form of internal war, one that occurs primarily within a state, not between states, and one that contains at least some element of civil war.²⁵ AFRICOM will be based on a national strategy with regional effects, employing counterinsurgency tactics to provide security and maintain peace so that the governments of Africa can build a sustainable future.²⁶ Application of sustainability concepts into the operation will enable AFRICOM to execute its mission more efficiently with lasting results.

The term “sustainable development” has been around for approximately thirty years, it derives originally from the biological concept of “sustainable yield,” that is, the rate at which a species (animal or plant or both?) may be harvested without depleting the population²⁷. In the late 1980’s, the term “sustainability” and “sustainable development” were being used synonymously and was mainly concerned with environmental issues. In essence, sustainability is a form of strategic-level problem solving since it focuses on problems over a long term.

As AFRICOM begins to work with the host nation government to create a secure environment and to conduct its nation-building roles, utilizing sustainability concepts would help these two partners examine better ways for the local government to address future requirements, such as how to feed the people or how to make living conditions more sustainable. This is where the Army Strategy for the Environment’s concept of a *triple bottom line*²⁸ of mission, environment and community can be applied to address a

government's objectives for its people. Sustainability allows the people to take ownership into their own problems. In addition, the people of the country in question must own the reconstruction process and be its prime movers²⁹. If trust and confidence is not established with the civilian population by the national government and its partner, AFRICOM, then insurgents can exploit this friction for their own advantage.

As a partner, AFRICOM is obligated to address the needs of the civilian population to mitigate the potential for insurgents to develop and disrupt the goals that have been set out to accomplish. To address how sustainability can be a force multiplier for AFRICOM, it is necessary to examine how U.S. forces can operate in environments and self-sufficiently, that is, without always relying on reach-back capabilities for logistical support. What makes sustainability a force multiplier is similar to how U.S. forces dealt with Sadr City, Iraq and how the Army National Guard employed sustainability concepts in Afghanistan.

Breaking the Cycle of Insurgency

The best policy is to use strategy, influence, and the trend of events to cause the adversary to submit willingly.³⁰

—Ho Yanxi (Sung Dynasty)

A way to break the cycle of insurgency is by sustainability practices that provides people optimism about the future. A couple of illustrations of how current efforts in Iraq and Afghanistan precluded insurgent activities and capabilities by means of sustainable development are valuable.

Sustainability as a Tool in Sadr City, Iraq

On April 4, 2004, insurgents took hold of Sadr City, Iraq during Operation Iraqi Freedom. The city's population was approximately 6-7 million people, equivalent to the

geographical size of Austin, Texas. The population is mostly college educated living among one or two story buildings and a mix of skyscrapers.³¹ In the northern part of Sadr City, raw sewage was running throughout the city streets, within housing areas, and throughout areas where children played. Northern Sadr City had one of the highest infant mortality rates in the Middle East, one in ten children died before turning a year old,³² which was due to the poor living conditions. Infections and disease were rampant among the community because the hospitals and conditions of the hospitals were in disrepair.

In the southern part of Sadr City, the key municipal services such as electricity and potable water were not available thus leading to a crisis situation and insurgent stronghold. This situation created a problem for Lieutenant General (LTG) Peter Chiarelli, Commander of Multi-National Corps-Iraq and his commanders who were trying to create an environment where the new government could be established and function. A review of the situation in Sadr City proved that 15% of the population was insurgents with a large majority of the population uncommitted to the insurgents or to the new government, largely waiting to see how the government would take care of their needs. To keep the majority from joining the insurgency, these people needed to be convinced that their quality of life was going to improve under the new government.

Figure 1, illustrates the lack of municipal service conditions of Sadr City that U.S. forces faced demonstrating concurrence that sustainable development had direct correlation with insurgent attacks. Analysis of the insurgent attacks and their locations on the map confirmed that the lack of electrical power and raw sewage running throughout Sadr City created an environment for insurgents to recruit for their cause

and further cultivate.

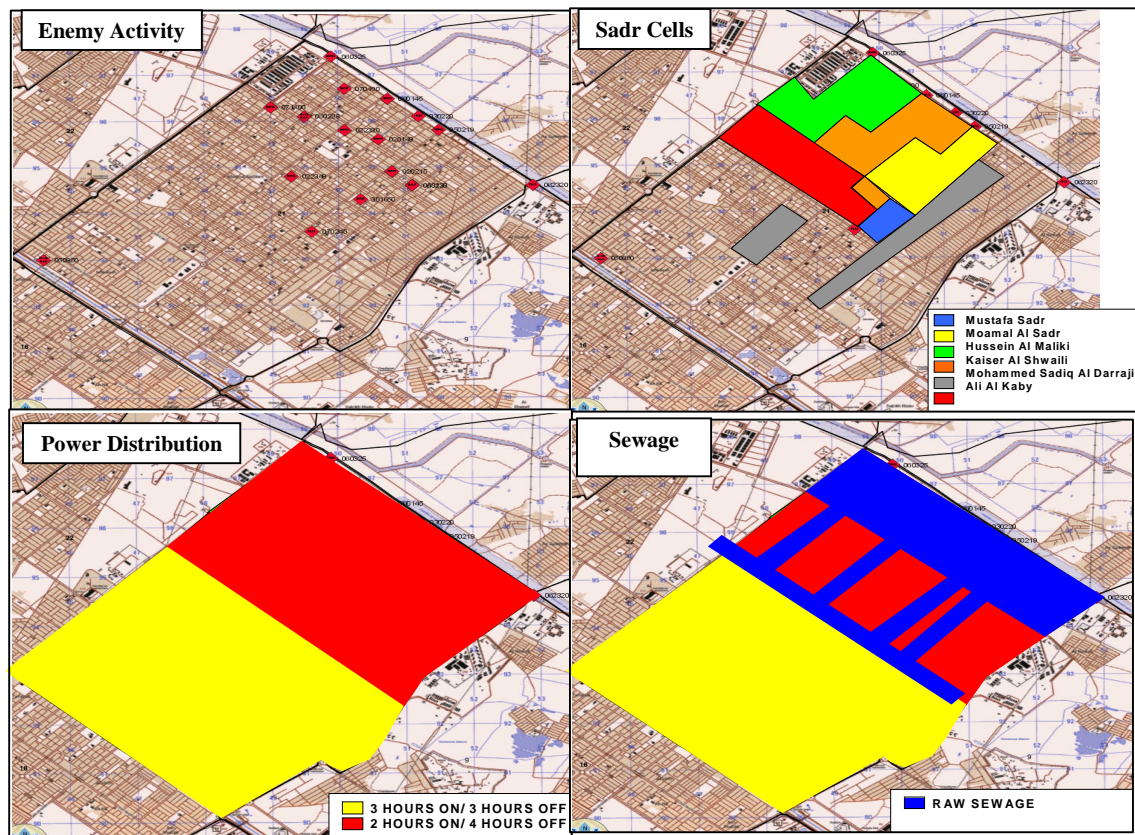


Figure 2: Slides presented by LTG Peter Chiarelli on Sadr City, Iraq in Operation Iraqi Freedom 2004.³³

The majority of eligible workers in Sadr City were former state employees that were unemployed because of the destruction of the old government. LTG Chiarelli stated “Non-kinetic instruments of power are important from a prevention stand point.”³⁴ Non-kinetic meant to work closely with the community, boost the economy by creating jobs for the unemployed while rebuilding the infrastructure of the community. Providing jobs created a means for these families to survive and gave the “fence sitters” a reason to help their new government rather than join the insurgent cause.

Once the men were put to work rebuilding the infrastructure, electricity began to function in Sadr City, potable water was available and accessible, and the sewage

problem was resolved allowing for a better quality of life among the people in Sadr City. This, in turn, reduced the risks of infection and disease. No longer could the insurgents recruit the people of Sadr City to the insurgent ranks or help them in the disruption of the new government. In short, the solution to the insurgency problem in Sadr City required a systems thinking approach, with a “triple bottom line” of mission, environment, and community because the Army was dealing with an enemy that was living among the community where municipal services were non-existent and living conditions were poor.

To identify the group that truly represented the insurgency was crucial to mission success, the Army command had to separate the insurgents from the “fence sitters” by using sustainability concepts of water preservation, energy production and waste control. Once municipal services were restored, the “fence sitter” group sided with the government, which left the group of individuals that were truly insurgents more visible for identification. Only then, was the military able to capture or kill the insurgents responsible for the attacks. Sadr City is a good example where sustainability concepts were used as a tool for security cooperation against insurgents.

Sustainability as a Tool in Afghanistan

In 2005, the U.S. Army National Guard units began a project to advance Afghanistan’s economic development.³⁵ At first, the main task was addressing stability in the region by establishing a safe and secure environment in which to conduct operations. Once security was established, National Guard units began working with Afghans in the agriculture sector to build political stability. In Afghanistan’s agricultural

sector, poppy seed (used for heroin/opiate drugs) production was on the increase, and became a source of financing for the insurgency as well as terrorist organizations.

One option to address the problem was to destroy the poppy seed crops but that approach would lead farmers to sympathize with insurgents and recreate the security problem. Instead, the National Guard units embarked on projects designed to make the farmers knowledgeable about crop rotations and alternate crops to plant. The National Guard units received support of the Missouri Farmer's Bureau and state higher education institutions. For example, the Farmer's Bureau provided technical assistance to Afghan farmers that facilitated the transfer of knowledge. Also, National Guard soldiers provided additional knowledge to the Afghan farmers based on skill-sets learned from their civilian employment outside the Army. These additional civilian skill-sets became a force multiplier to the ground commander undertaking such a non-traditional mission for counterinsurgency.

This approach would ensure that the Afghan farmers could sustain their families and provide for their future while curtailing poppy production used to fund the insurgency. It also helped isolate farmers from the insurgents because it changed growing patterns from a local economy based on drug subsidy to a food and fiber program that helped feed the people of Afghanistan and also sold as an export commodity necessary for Afghanistan's economic growth.

Placing value on sustainability is not mandated by the Afghan or the US government. Instead, this initiative fosters an environment where people place value on what they contribute to the general welfare of the society. In the U.S., the citizens take ownership into their communities through their involvement in civic organizations,

through their employers, through the educational system, and through the work of the government itself. In Afghanistan, however, this outlook does not exist because tribal life dominates. Further, many are unschooled, and the government, for the most part, is corrupt. The National Guard applied sustainability concepts to expand the people's understanding beyond their immediate families and tribes, to help create a program that not only helps the overall economy and people of Afghanistan, but also as a tool for security cooperation against insurgencies that want to prevent a democratic Afghanistan from emerging.

What Gaps Exist Toward Integration

"We found that the electricity infrastructure was incapable of meeting the needs of the city long before we arrived. At no time in the recent past did Baghdad have enough electricity to go 24 hours," he says. And: "The sewers were never running at more than 75 percent capacity. When we got there most of the sewage ran into the Tigris through the storm drains." And: "Trash was a huge problem. Imagine a city of 6 million where the trash system shuts down for a month." And there was no one else around to try to fix it.³⁶

—MG Martin E. Dempsey, Commanding General, 1st Armored Division
Statement presented to Richard Lowrey of National Review.
MG Dempsey had responsibility for Baghdad from Saddam's fall until April 2004.

The importance of sustainability to the AFRICOM AOR is that it helps to promote stability in a region that often has periods of turmoil. Further, sustainability promotes stability without taking precious natural resources away from communities that barely have enough to survive. It also gives something back by helping the community to attain healthier living standards and increase their quality of life.

A review of what gaps exist to accomplish the assistance that will deliver a better quality of life for the people is that in most developing nations, there are no power grids to provide electricity to their homes. **Electricity** is an area that the PRT engineers will

need to focus on so other services can be furnished. **Conservation** is another gap that could lead to disaster because the areas that U.S. forces will deploy may have meager natural resources, such as water and fertile soil in which to grow crops. If the water supply is deficient in aquifers or surface water, commanders on the ground will need to utilize their own water source rather than use the host nation's. This could lead to increased cost to the U.S. government to support the operation and provide potential targeting opportunities for insurgencies as supplies are transported to and from FOBs.

Another gap is the lack of diplomacy training among the Army. As PRTs deploy throughout Africa, military personnel will be faced with situations where diplomacy could help ascertain and assist with reconstruction efforts since they may be the only ones coordinating with the local government. In Iraq and Afghanistan, there were many instances where military officers and non-commissioned officers worked as diplomats to engage in coordination efforts. Adding instruction on diplomacy will enhance the Army's capabilities and assist in interagency coordination.

Another way for the Army to increase its capabilities is to introduce an Additional Skill Identifier that includes certified civilian skill-sets into the Army Military Occupational Skill (MOS) system. Many soldiers in the reserve component have civilian employment which can be especially helpful during infrastructure modernization efforts. For example, some soldiers may have city government experience because they may hold a position within their home town city council and know the mechanism of urban development. Other soldiers may work in sewage treatment plants back in their home town that can have direct impact on the AFRICOM mission by bringing in skill-sets apart of the Army's MOS system. This will enable AFRICOM commanders and PRTs to have a

comprehensive inventory of soldier's skills not MOS specific as they work to address challenges presented during stability operations.

Building Trust and Confidence with SWET Equity

SWET³⁷ is a term that describes sewage, water, electricity, and trash as part of a sustainable development operation. SWET is inextricably linked to force protection because once these municipal services are operational; the risk to U.S. soldiers can diminish as observed during counterinsurgency operations in Sadr City, Iraq in 2004. As the civilian population takes ownership of its situation and begins to work on infrastructure improvements, an insurgency have a hard time gaining sympathizers to its cause since the people that were once sitting on the fence about the cause are employed and enjoying the fruits of their labor. As with all civic or humanitarian/peace-keeping missions, PRTs will face many challenges that require significant resources, human and especially financial.

The resources required for PRT purposes could be time, personnel, money, fuel, vehicles, equipment; all the while these resources could be used elsewhere in their operation.³⁸ However, during a PRT mission, sewage, water, electricity, and trash could underlie the sustainability strategy that changes the whole impact of how a struggling host nation survives, thrives, and most of all, allows their government to develop and diminish the potential for insurgency.

In almost all under-developed countries, open **sewage** lays on the ground throughout the communities lacking conveyance to treatment facilities that can cause health risk hazards, thus leading to increased morbidity and mortality. Open sewage can infiltrate into the drinking water supply, contaminating the water with biohazards that

can also do harm to the people, plant life and livestock. Sewage as a solid waste can be used as a fuel source if properly incinerated thereby helping to tackle the electricity constraint.

PRTs will be placed with the responsibility of serving the community to obtain better sewage/sanitary management which provides better hygiene, a better ease of operation, a source of recyclable water (non-potable uses or potable if the need is great enough). It would also sanction lower fuel costs caused by incineration of solid waste and less water shipments permitting less vehicle transportation requirements to bring water to the AOR, thereby lessening the potential for terrorist attack.

Water means survival for the people of Africa and our soldiers that will be stationed there. Water concerns, including adequate water supply, increased cost of production per unit volume, water quality, habitat degradation, and salinity issues are already impacting military installations and military operations in many locations.³⁹ Agriculture has a huge impact on the water supply in the community because more water goes toward crops than to human consumption. With the introduction of multi-seasonal crop rotation, water will be in less supply because of increased demand. Water is also the key to good hygiene and will reduce the spread of infection.

For the PRTs, water will be the most important part of its mission because of lasting impact to sustainability if water is not available. The water problem brings a long logistical tail that can be lessened if water practices of recycling grey and black water are used. Water brings with it a great cost, both financially and in human sacrifice. In the GWOT, for example, the water consumption rate is based on 12 liters per soldier per day for drinking water only. Since actual prices of bottled water are proprietary, the

Defense Logistics Agency provided a range of \$10.00-\$13.00 per 12-liter case of bottled water for soldiers serving in Southwest Asia.⁴⁰ With an average of 150,000 soldiers serving in Iraq, the approximate cost for bottled water is at a range of \$1,500,000-\$1,950,000 per day.

To get the water to the FOB requires contractors and soldiers driving trucks between FOB's at great risk of insurgent attack on the road networks. Through the use of a recycling program, grey and black water can be reused and that would reduce the daily water requirement, thereby reducing the targets for insurgents and the amount of money spent to fund the effort by the U.S. Treasury. PRTs can work with the host nation to help them utilize the same techniques of water preservation and conservation to help their communities increase water availability for human consumption and agricultural use.

Electricity is the key to bringing African communities into the 21st century. In Africa where the temperature can be unbearably hot, electricity can provide air conditioning to families that would never have the opportunity to have it. Electricity can also run a refrigeration unit that will help keep foods safe for consumption and comprise an ability to preserve the food. Building an infrastructure that supports an electrical grid is a motivator to the civilian populous that may not ever have had electricity available to them. Developing a grid within the community to make electricity work will require a lot of resource and financial backing to assist in putting young men to work that could have been pressured into fighting for the insurgency. Electricity brings hope and a future of survival to the community and helps to deliver a position of great political strength for the local government.

Trash is the one item that you will find all over a third-world country. It builds up along waterways; it is piled up at every corner and strewn throughout the neighborhoods. Trash brings rodents into the communities and into homes which can lead to disease. Rodents also get into and destroy food supplies. Uncontained trash can lead to increased infections among children because they have a tendency to play within the trash producing multiple pathways for infection. A lot of communities will burn their trash daily causing concerns toward the types of items being burned that could be toxic if inhaled. In hostile environments, such as those where U.S. forces will live in Africa, trash will be a burden on the health and welfare of the people in communities where civic engagement occurs.

The PRTs will have a great deal at stake by instituting a sustainability strategy into their operations while living in remote areas of Africa. On the FOB, trash can be placed in a composter and used as a fuel source to address the electricity needs thereby, reducing the fuel requirement that are transported by trucks into the FOB.

Support from the Corps of Engineers and Civil Affairs can assist the operation by leaving the SWET systems behind to support the host nation and show them how they can be built. A kind of *teach them how to fish* approach sure to break the cycle of an insurgency. This is a great opportunity for AFRICOM to lead by example and to show the rest of the world how to conduct a sustainability strategy that will bring hope for the future into a region where trust and confidence are not part of their vocabulary.

The Sustainable Base Camp

A sustainable base camp should encompass a modular design founded on scalability and interoperability with portable components. At first thought, a base camp

itself can be set up to operate with an unlimited amount of personnel; however, it is the water resources and energy requirements that are not unlimited. To address the sustainability requirements of the PRTs, it would be tactically supple to have a sustainability system the size of a tractor trailer that can provide electrical energy⁴¹, bottle and recycle water for human consumption, and eliminate all trash waste while allowing for mobility when the need arises. However, manufacturing a system that is reduced in size in itself does not improve flexibility. It is the components that have to be “pre-designed” as plug-and-play modules that can be assembled as scalable systems either in a series or parallel to make it more flexible. They also have to be interoperable and can run off whatever power source that is available while being compatible with other service systems, other government agency systems, as well as those employed by key allies (Nato, Austrailia/New Zealand, UK...etc).

Figure 2 describes the Army Environmental Policy Institute's concept of sustainability to the warfighter.

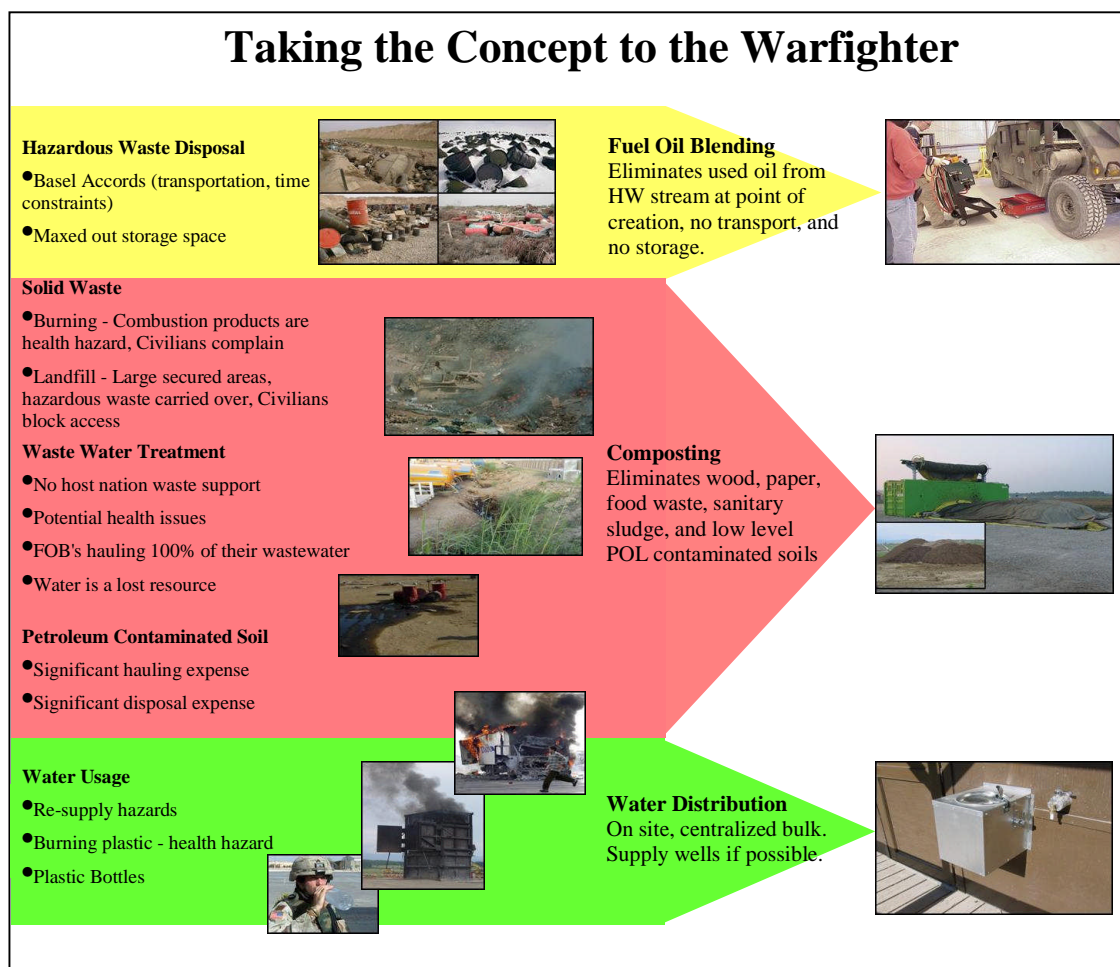


Figure 2. Bringing sustainability concepts to the warfighter. Slide presented by the Army Environmental Policy Institute at a meeting of Chief Environmental Health and Safety Officer's held on January 25, 2007, Long Beach, California.

Hazardous waste, solid waste, water resources and usage will be the factor that drives the sustainability strategy within the FOB and into the community. As part of the civic reconstruction effort, PRTs can work with the host nation to address the sustainability issues that will impact the FOB with the host nation leadership and provide assistance, or even deliver equipment that will bring answers to natural resource and municipal service shortages. Each product produced by PRTs to improve the quality of

life issues within the communities will build trust and confidence in the people and reduce the hopes of insurgents to operate in those communities.

What does a sustainable base camp look like? Figure 2, provides a look at the activities required to deliver SWET services to the soldiers and civilians living and working on the FOB. To reduce the logistics tail and cost to the U.S. government for goods and services rendered by outside sources, the base camp systems require conservation and recycling efforts as trash components develop into an energy source and used water is recycled for additional use. For the base camp to be practical to ground commanders, the sustainability systems need to be modular, mobile, and scalable. Let's review the concept of a sustainable base camp.

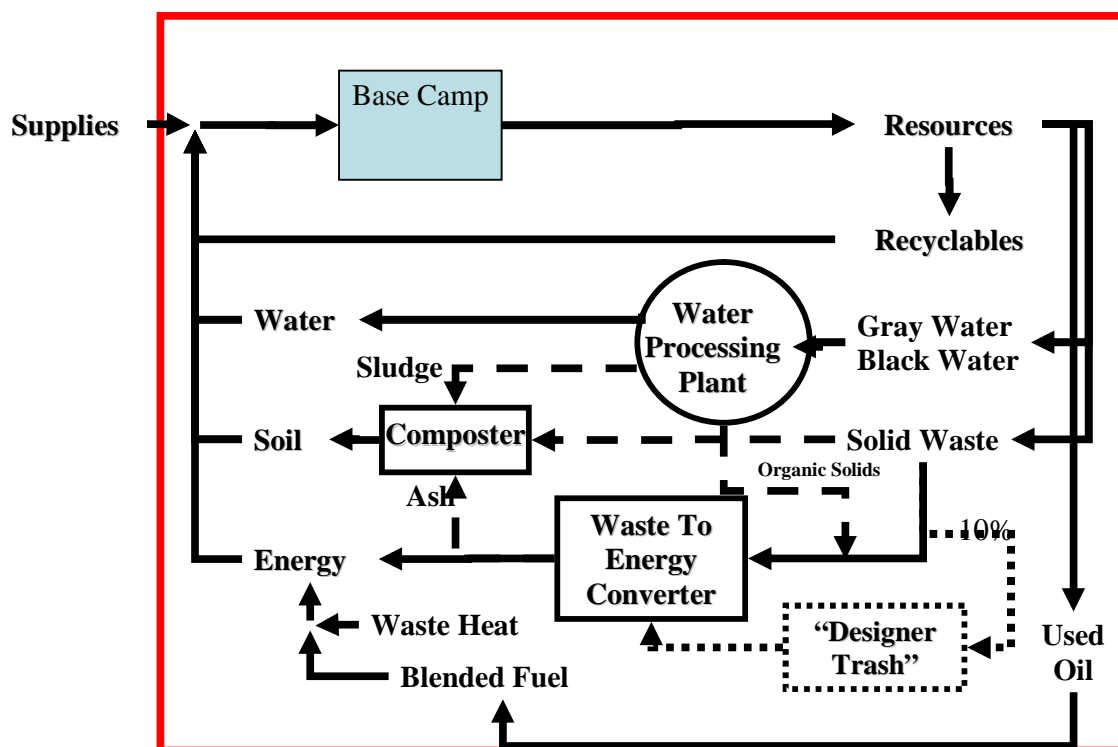


Figure 3. A model of a Sustainable Base Camp.

In each case, most used resources will turn into a waste product of some sort, whether it is in a liquid or solid form. To address the waste concerns, the FOB will need

a Water Processing Plant for water waste, a Composter to utilize solid waste and recycle into soil amendments, and most importantly a Waste Energy Converter that will turn solid waste trash into a fuel source that will produce electricity. Any used oils from vehicles and equipment can be blended into a fuel that will also produce electrical energy.

In Operation Iraqi Freedom and Enduring Freedom, U.S. soldiers are provided drinking water in a liter-size bottle that produces an enormous amount of waste on a daily basis. Currently, those bottles are ending up in the burn pit for destruction when they should be recycled and refilled for reuse. The FOBs in Iraq and Afghanistan are rarely recycling their grey and black water, for the most part; commanders are placing grey and black water into lagoons to dry out. If grey and black water is collected, it can be processed for redistribution into use for personal hygiene or even drinking if placed into a Water Processing Plant.

Solid waste, whether organic or non-organic is a great source to produce energy. Organic waste can be sent to the Composter to produce a soil source that would assist in agriculture. Also, organic and non-organic waste can be sent to a Waste to Energy Converter that would incinerate the waste to use as electricity, making the base camp more efficient. The success of how much energy is produced is dependent on availability. The theory behind this is the more people producing waste will cause more energy production. Also, the idea is that the base camp would produce more energy than it will use, allowing the opportunity to export the energy into the outlying communities.

Systems designed around waste, water and energy is not new science; cities in the U.S. already apply these systems to their infrastructure. The goal for the Army is to reduce the overall FOB footprint by including a sustainability strategy that uses alternative ways to produce energy and fuel to strengthen Army operations and its capabilities. To achieve a sustainable base camp, the design should be modular so that the components can be utilized in a plug-and-play fashion, allowing for the flexibility of use. Scalability would allow the base camp to expand its output of resources in conjunction to the supply that is input. Interoperability would allow the base camp to function with whatever power source available and to be compatible with other service systems provided by other government agencies, or those supplied by allied armed forces.

As a final point, the functions of the sustainable base camp (see Figure 3) should also be turn-key. This provides an opportunity for the AFRICOM command to develop allies by making sustainability technology available to the supported nation with the intention of securing a future based on trust. Once the host nation is secure and their quality of life is improved, sustainability can be used as a tool for security cooperation and counterinsurgency.

Recommendations

- Introduce an Additional Skill Identifier that includes certified civilian skill-sets into the Army Military Occupational Skill (MOS) system. This will enable combatant commanders to have a comprehensive inventory of soldiers' skills not MOS specific as they work to address challenges presented during stability operations.
- Introduce instruction on diplomacy to the officer and non-commissioned officer (NCO) ranks. Since World War II, the United States has been deploying into failed state regions that require officers and NCOs to act as diplomats to host nation local governments. Adding instruction on diplomacy will enhance their capabilities and assist in interagency coordination.
- Manufacture sustainability technologies such as a water processing unit, waste to energy convertor, and soils composter the size of a tractor trailer for base camp use. Once acquired by the Army, add the technology as part of a company Modified Table of Organization and Equipment (MTOE).
- Further research is needed to determine the best solutions to base camp sustainability systems as a means to become self-sufficient with energy, water, and waste control.

Conclusion

AFRICOM is a post-Cold War experiment that radically rethinks security in the early 21st century based on peace-keeping lessons learned since the fall of the Berlin Wall. ⁴² Accomplishing the mission will require a strategy based on stability operations and counterinsurgency, however, permitting the long-term strategy of sustainability into all aspects of the operation will enforce a systems approach to planning and decision-making designed to sustain the natural and societal infrastructure. AFRICOM will utilize an interagency approach to humanitarian assistance and peace-keeping with the headquarters composed of the Department of Defense, Department of State, U.S. Agency for International Development, and other U.S. government agencies.

Applying a strategy using sustainability concepts will not only help AFRICOM deter insurgencies, but will also preserve the host nation and protect its future and U.S. national interests. SWET equity is the key to addressing the needs of failing or failed states as the people have municipal service needs requiring government attention that provides an opportunity for an insurgents group to undermine the government and gain sympathy by the people for its cause. The command structure of commands in FOBs placed by AFRICOM throughout Africa will be small in size, most likely an infantry company, and will need the ability to expand in size because of the number of refugees or detainees. To assist the FOB commander tackle a sustainability strategy for the FOB and host nation being supported, technology into water purification, a way to produce energy through waste disposal and blended fuels need to be addressed to support municipal services at the FOB and exported to the community. As attention is prearranged to serve the community through application of SWET, the outcome is a

reduction in the potential for harboring insurgents. Also, increasing the amount of energy through waste disposal and the recycling of grey and black water in the FOB, AFRICOM will see a reduction in the amount of financing needed to support the mission and the number of supplies requiring transportation to support the FOB, thus allowing for less targeting opportunities for insurgents.

Stabilization in Africa will be a challenge for AFRICOM; however, employing a sustainability strategy that enforces the Army's triple bottom line of Mission, Environment, and Community, AFRICOM will be better equipped to support its humanitarian and peace-keeping operational missions.

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